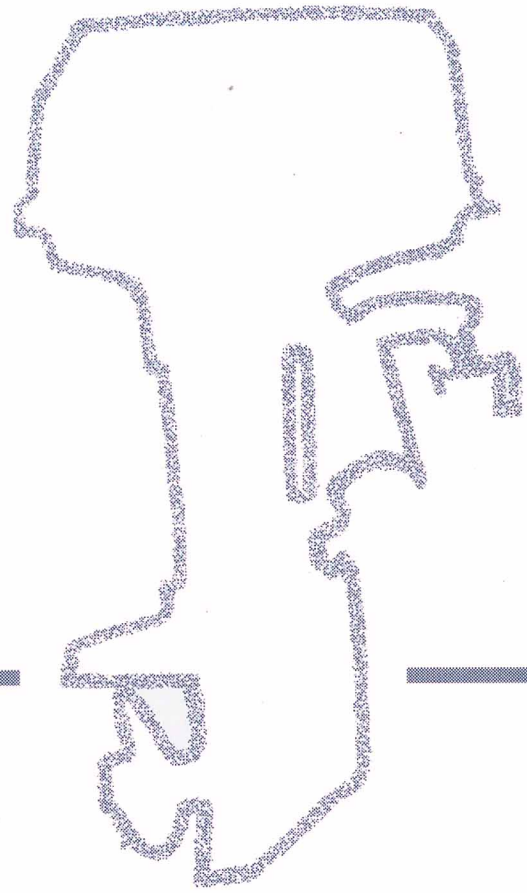
OWNER'S MANUAL

Oyster 5

Oyster 6

Black Bass 7,5



SELVA Marine

This manual must be considered as an integral part of your outboard motor and has to be kept with it, also if the motor is resold. **Selva joint-stock CO.** reserve the right to change its product at any moment, except for the essential specifications, which will be kept as they are.

Any reference to products or details of a third party has only an informative purpose and it doesn't represent an obligation.

Selva joint-stock CO. doesn't take on any responsibility concerning the performance or the employment of these products.

We are glad that you have chosen a **SELVA MARINE** product, which means quality, technology and careful research. Your choice will give you many advantages, which you will soon learn to appreciate. Our dealers, our after-sales service and the guarantee, which you have signed, together with the observance of the information contained in this owner's manual are the essential conditions to give your recent purchase a long life.

Your holiday, your favourite sport, your job, which has from today the name **SELVA MARINE,** will be a further moment of satisfaction.

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INTRODUCTION

Before operating this outboard motor, read this Owner's Manual carefully and completely, pay attention especially to the safety measures and rules.

Your safety and other people's safety do not depend only on your ability at using the motor, but they depend also on your knowledge and on the efficiency of the motor as well as on the respect of the laws and regulations relating to the use of outboard motors.

We suggest you improve your knowledge of the motor so that you can sail with mastery and confidence.

If any kind of repair on the motor should not have been clearly described in this manual or if you want to order spare parts or accessories, or if you have any question about the operation or maintenance of your outboard motor, please consult an authorised **SELVA MARINE** service station or **SELVA MARINE** dealer

ATTENTION

Pay attention to all the particularly important information that in this manual are distinguished in the following ways :

Safety measures and rules, which protect the machine operator and other people from serious accidents or risks.

Directions or special precautions that must be taken to avoid damage to the outboard motor or personal accidents.

Directions that make procedures easier or clearer. Technical information.

OUTBOARD MOTOR IDENTIFICATION DATA

This data is stamped on the label attached on the clamp bracket, as shown on the picture 1.

When you receive your new SELVA outboard motor write down the serial number, it will be useful to you in case you will have to order spare parts or for reference if your outboard motor should be stolen.

Make sure that the data on the label is the same as the data written in your registration book.
Picture No.1

Do not install an outboard motor with more horsepower than shown in the certification of your boat.

SERIAL NUMBER RECORD

Write down the identification number and the model of your outboard motor in the spaces below.

MODEL

SERIAL NUMBER

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DIRECTIONS FOR USE

BASIC SAFETY MEASURES

To use the outboard motor you must have all requisites provided by law (physical suitability, insurance, government duties, registration, and so on). We suggest you become familiar with your boat equipped with SELVA motor in places, which are not too crowded.

Taking some medicines, alcoholic drinks or drugs increase considerably the risk of accidents.
Make sure that you are in a physical condition suitable for driving. Pay attention to tiredness and sleepiness.

The engine operator should not let his mind wander, or be distracted or influenced by other people, things or actions,(do not smoke, eat, read, and so on.) while steering the boat.

Use fuels and oils suitable for the engine, which are listed in the "greasing chart ".
Check every so often the oil level and the fuel level.

Stop the motor before every kind of maintenance or cleaning procedures, and in case of complicated maintenance take the spark-plug cap out. **Picture No. 2.**

Before opening the top cowling, wait till the engine has cooled down.
Do not open the top cowling, when the engine is running.
Picture No. 3.

PAY ATTENTION TO THE PROPELLER

The propeller is certainly the least protected part of your motor. It is therefore forbidden to get near the propeller when this is in rotating. You must leave bathers, skiers and other boat users enough space to move, in order to avoid any contact with the propeller. **Picture No. 4.**

The engine operator must attach the engine stop switch lanyard to his wrist when the motor is on. **Picture No. 5.**

Never sit on the motor. **Picture No. 6.**

Never change the inclination angle of your motor using the steering rod, but use the proper handle.

Picture No. 7.

The motor must always have its top cowling on, when it is operating

Picture-No. 8.

When you connect the fuel joint, check the proper connection.

Picture No. 9.

When starting there must be nobody within the engine operator's action radius. **Picture No. 10.**

There must be nobody within the motor steering radius.

Picture No. 11.

The free lock lever must always be engaged while the motor is in motion.
Never tilt-up the motor out of the water, while it is in motion.

Picture No. 12.

Never pull the recoil starter handle, while the motor is running.

Picture No. 13.

To transport the motor use only the proper handle.
Before transporting the motor you have to tilt-up the steering rod properly.
The fuel tank is also provided with a handle to use for the transport. **Picture No. 14.**

When starting or operating the engine, do not touch electrical parts and particularly the ignition-coil, the high voltage wire, the spark-plug cap and the spark-plug itself.

When opening the safety valve of the fuel tank, highly flammable vapours come out. Do not smoke, inhale or use open flames close to it.

If the motor has had an accident, you should have it fully checked, before you use it again. If necessary let the **SELVA MARINE** authorised skilled staff have a look at it.
Do not use the motor, if the damage could have compromised the sailing safety.

Any alteration attempted on your motor or the removal of any of its basic elements, can compromise its safety and it is besides against the law, and anyway it means the immediate loss of your guarantee.

Observe the laws in force.

Pay great attention to the weather conditions. Listen to the weather forecast and take the warnings to the sailors into consideration.

Keep your boat and equipment on board in a perfect state of efficiency.
Keep enough spare parts on board.
Inform somebody of your route, before sailing.

Prevent fires and explosions.

Before operating an outboard motor, you must know the laws and regulations relating to navigation.

Avoid sudden and dangerous manoeuvres

SELVA motors are only meant as propulsion for pleasure craft. **SELVA joint-stock CO.** declines all responsibility for any damage to items or harm done to any person, which is due to an improper use of the motor.

SPECIFICATIONS

MODEL	OYSTER 5 – F135A	OYSTER 6 – F135 B	BLACK BASS 7,5 – F165 A
POWER	5HP / 3,7 Kw	6HP / 4,4 Kw	7,5HP / 5,5 Kw
FULL THROTTLE OPERATING RANGE	5000/5500	5500/6000	5500/6000
PISTON DISPLACEMENT	135	135	165
BORE X STROKE	57x53	57x53	63x53
NUMBER OF CYLINDER	1	1	1
ENGINE TYPE	cycle eight - 4 stroke		
FUEL PUMP	N° 1 Mechanical pump		
AVERAGE CONSUMPTION	1,2 litres/hour	1,5 litres/hour	1,9 litres/hour
FUEL	Petrol min 95 octans RON		
FUEL TANK	Separatated lt 12 (incorporated lt. 1.7)		Separatated lt 12
RECOMMENDED ENGINE-OIL	4 Stroke Motor oil API SE, SF,SG,SH,SJ - SAE 10W-30;10W-40; 15W-40		
OIL QUANTITY	600gr.		
SPARK LEAD	electronic automatic programmed with the engine revolutions		
STARTING	manual with rope, which returns automatically on the pulley		
SPARK PLUGS	Champion RAX96C – Bosch XR 5 DC – NGK DPR6EA-9		
EXHAUST	submarine depression-working through the propeller-hub		
COOLING	water cooling with forced circulation caused by a NGK pump		
PROPELLER REDUCTION RATIO	13/30		
GEAR SHIFT LEVER	forward gear - neutral gear - reverse gear + shaft rotation of 360°		
RECOMMENDED GEARBOX-OIL	OUTBOARD MOTOR GEARBOX OIL - API GL-5 SAE 80W/90		
GEARBOX-OIL QUANTITY	200 gr.		
PROPELLER TYPE	anti-weed with three blades		
TRIM ANGLE ADJUSTING	5 positions, which you can select through pin		
SUSPENSIONS	anti vibrations annular shock-absorbers		
RECOMMENDED HEIGHT OF THE TRANSOMS(mm.)	normal shaft 380 - long shaft 510		
WEIGHT (Kg.)	normal shaft 27 - long shaft 27,5		

Selva joint-stock CO reserve the right to change weight, construction, materials and characteristics without warning and without therefore having to change the motors, which were built previously. **See Picture No. 15 for the dimensions of your motor.**

LOCATION OF MAIN COMPONENTS

See picture No. 16

N°	DESCRIPTION
1	Tilt-up handle and air intake
2	Back cowling lock lever
3	Oil filling plug / motor oil level
4	Transport handle
5	Steering adjustment
6	Engine stop switch / Stop button
7	Trim angle adjusting-rod
8	Anti-cavitation plate
9	Propeller
10	Water inlet
11	Swivel bracket
12	Accelerator grip
13	Throttle-control adjustment
14	Clamp-screws
15	Tilt lock lever
16	Choke knob
17	Gear-shift lever (R = reverse gear ; N = neutral gear ; F = forward gear)
18	Fuel joint
19	Recoil starter handle
20	Cooling system warning lamp
21	Fuel tank cap (model with incorporated fuel tank only)
22	Fuel Cock (model with incorporated fuel tank only)
23	Oil draining plug

CONTROL FUNCTIONS

Gear-shift lever
Starting out from the position of neutral gear (N), turn the lever in boat direction and you engage the clutch with the forward gear. Turning it in the opposite direction, you engage the reverse gear (R). **Picture No. 17.**

Push-button to stop the motor.
Pressing the stop button (red) the ignition circuit is broken and the engine stops immediately. **Picture No. 18.**

Choke knob.
Pulling this knob it supplies a richer mixture required to start a cold engine. **Picture No. 19.**

Fuel cock (integrated tank)
Turning the cock you open or close the fuel connection to the carburator. **Picture No.20**

Fuel joint (separated tank)
Connecting the fast fuel joint, you connect the fuel hose to the fuel tank. **Picture No. 21.**

Recoil starter handle.
Pulling this handle starts the engine.
Picture No. 22.

Emergency engine stop switch.
Swithc to stop the engine in an emergency.
Picture No. 23.

Throttle-control adjustment.
Device which permit to have a constant speed.
Picture No. 24.

Accelerator-grip/steering-handle.
Turn the grip to operate the accelerator, and move it sideways to adjust the steering angle. **Picture No. 25.**

Cowling lock hook.
Cowiling blocking device. To remove the top cowling pul the lever to the up side. When put the top cowling, pay attention that it should placed correctly with the front hook inserted, than couple the back hook and block pushing down the lever **Picture No. 26.**

Lever to control the anti capsize hook.
It control the engine blockage hook, to avoid the capsize caused by the reaction to the propeller push during the reverse navigation.
Picture No. 27.

Clamp-screws.
Use them to clamp the outboard motor on the transom.
Picture No. 28.

Steering adjustment grip.
With it you can adjust the resistance to steering movement. Screw it to increase resistance. **Picture No. 29.**

Shallow water lever.
It release the tilt support bar. **Picture No. 30.**

Trim angle adjusting-rod.
It can be positioned in different holes in order to obtain the appropriate trim angle.
Picture No. 31.

Wiring diagram.

Legend

1 - Flywheel

2 - Ignition-coil

3 - Sparking plug.

4 - Emergency engine stop switch / Stop button

Picture No. 32.

SYMBOLS see picture No. 33.

1 - A serious risk is present. The machine operator must read and follow the instructions in the manual.

2 - Pull the choke knob.

3 - Position of the gear-shift lever.

4 - Outboard motor free lock.

5 - Opening level of the throttle.

6 - Warning against fire hazard.

7 - Starter-switch for engine.

8 - Button to stop the motor

9 – Indication fuel cock positionning

THE USE OF OUTBOARD MOTOR

PRELIMINARY CONTROLS CHART

DETAIL	CHECK DESCRIPTION	PAGE
Complete supply	Check that the motor supply includes all the components, that are in the detailed list	13
Right installation	Check the proper installation of your motor (the centre of the transom).	13
	Check the proper mounting height of your motor.	13
	Check the tightness of the clamp screws.	13
Fuel	Check the conformity of the fuel to the detailed list.	15
Fuel hose connection	Check the proper connection of the fuel hose.	15
Oil filling	Check the motor oil level in the oil sump with the appropriate dipstick	22
Check of the equipment on board	Check that you have on board everything necessary to face a possible emergency.	

Before leaving always check your motor to make sure that it is in a perfect state of efficiency, check its proper and safe functionality. Failure to check as shown in the chart could result in severe injury to people or damage to the boat.

If you ever have a question about the operation of your outboard motor, or if you should find any kind of anomaly, please consult a SELVA MARINE dealer. The time which is needed to check your motor is very modest, but the safety, that you obtain from it is enormous

Check of the supply.

When you receive your motor, check that:

- the packing is integral
- the supply corresponds to the detailed list:
    1. the entire motor
    2. fuel tank supplied complete with the fuel hose and fast fuel joint (for the motors with separate fuel tank)
    3. tool-bag
    4. use and maintenance manual
    5. certificate of guarantee
    6. declaration of conformity E.E.C.

- that there is no evident damage. If there is a damage or if parts are missing, you must inform immediately and in detail the forwarding- agent, SELVA joint-stock CO. or its area agents.

Picture No. 34

Outboard motor mounting

A good position of the motor on the transom is very important to have an appropriate trim angle and therefore to obtain a good performance from your boat
To have the optimum mounting height of the outboard motor, you must mount it so that the anti-cavitation plate is between the bottom of the boat and a level of 2 cm below it and it is parallel to it.

If the mounting-height is too high, cavitation tends to occur and consequently there will be a falling-off in the performance and a probable overheating of the motor.
If the mounting-height is too low, the water-resistance will increase and thereby reduce engine efficiency.

Picture No. 35.

The motor must be vertical to the water surface and the bracket mounted on a flat even surface and should be fully supported by the top edge of the transom.
If the bracket is not fully supported or, if the transom height is too low, a hard wood block should be securely fitted between the bracket and the transom.

Picture No. 36.

Trim angle adjusting

The trim angle is the inclination angle, that should be given to the motor in order to obtain an optimal performance from your boat.

An improper trim angle does not only affect the performance of your boat, but can also cause loss of control, which means danger for the people on board.

While sailing the motor should be perpendicular to the water surface, but the trim angle can be 3 degrees to 5 degrees.

If the trim angle is made too great, the buoyancy centre of the boat will shift towards the stern. In this condition, and if the stability moment at the bow is large, the boat will tend to "porpoise". If the trim angle is insufficient, the bow may "plough", making the boat unstable.
When the boat is in stable trim it remains parallel to the water.

To adjust the trim angle proceed as follows:

- close the safety valve of the fuel tank (for motors with incorporated fuel tank);
- push down the free-lock lever and tilt up the motor ;
- remove the adjusting-rod and reposition the rod in the desired hole, which allows the appropriate trim angle;
- unlock the tilt support bar and bring again the motor in the vertical position, so that it leans on the adjustment pin;
- set the free-lock lever to the lock position;

Improperly distributed load on boat or in different positions, can alter the ideal trim conditions.

You must adjust the trim angle when the engine is switched off.

Picture No. 37

Ensure the transom clamp screws are tightened securely

Picture No. 38.

FUEL

Fuel

The fuel used for the propulsion of internal combustion engines is highly flammable and, in certain cases can become explosive.
Refuelling and maintenance operations must be done in a well-ventilated area and with the engine stopped.
Do not smoke while refuelling, keep away from sparks, flames, or other sources of ignition, which could cause fire or explosion.
Do not spill gasoline. If gasoline spills, wipe it immediately with dry rags, before starting the motor .
Do not overfill the fuel tank, because gasoline expands with the heat and the sun radiation.
Tighten the filler cap securely after refuelling.
Do not let gasoline get into your eyes or onto your skin. Avoid swallowing gasoline or inhaling its vapour. Do not pour fuel off using a pipe.

KEEP OUT OF CHILDREN REACH

Preparation of the fuel

Use only petrol with a octane number higher than 95 N.O. Research and that they not contain alcohol, (see the detailed list)

Fuel tank clamping and pipes connection

Put the fuel tank horizontally in the hull, anchored to the bottom, in a place where it does not hinder your movements and so that the piping is long enough to reach the motor.
Then connect the piping to the fuel joint. **Picture No. 39.**
For this operation you have to insert the female fast fuel joint. **Picture No. 40.**
Now you have to check the connection, pulling lightly the joint (do not pull grasping the hose). **Picture No. 41.**

To release it is enough to pull the ring nut of the fast joint.

STARTING

Verifications before starting the motor

Check that the top cowling is locked, that the free-lock mechanism is in the lock position and that the gear-shift lever is in the neutral position (N).
Picture No. 42.

Make sure that the lock plate is installed on the engine stop switch. **Picture No. 43.**

Starting procedures

Open the fuel cock (for integrated tank models) **Picture No.44**
Loose the safety valve on the fuel tank. **Picture No. 45**
Fill up the carburettor with fuel using the little hand pump (you have reached your aim, when the pump has become firm). If your engine is cold, you have to pull the choke knob.
Picture No. 46.
Place the throttle-grip in the "start" position. **Picture No. 47.**
Pull the starter-handle slowly so that the starter pinion engages with the flywheel. **Picture No. 48.**
Set the choke knob to home position. **Picture No. 49.**
Pull the starter-handle powerfully until the engine starts. If necessary, repeat the procedure. **Picture No. 50.**

You don't need to use the choke-knob, if the engine is warm.

If the motor doesn't start after several attempts, you should refer to the troubleshooting section.

In case of start of the models with intagrate tank following the stop of the engine caused from fuel exaustion, after refueling pull the choke knob with warm motor. This procedure make easier the filling of the carburator

Verifications when the motor is on

Just after starting the motor, you should make sure that :

- after 5/10 seconds, water runs out from the cooling-water pilot-holes. The indicator at the entrance of the circuit, provides only for the proper operation of the pump and not for the circulation of water in the head and in the cylinder . That means that possible shortages will not be indicated.
  If water does not flow from the pilot-holes check to see if the water-inlets are blocked. **Picture No. 51**;
- that you do not hear any strange noise;
- that the throttle-grip operates in a proper way;
- that the gear shift lever operates properly and that with the reverse gear selected the motor does not rise;
- that the engine stop switch operates properly;

Emergency starting procedures

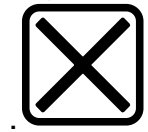
If the starter does not operate, the engine may be started with an emergency starter rope.
Carry out the following operations :
remove the cowling; place the gear-shift lever in the neutral position " N ", and the throttle-grip in the start position and check the installation of the lock-plate on the engine stop switch. Remove the screws blocking the starter and remouving it (it is necessary to detach the block start system with insterted gear)
Insert the knotted end of the emergency starter rope into the notch in the flywheel rotor, wind the rope two turns clockwise, then pull strongly to start. repeat if necessary.

When starting the engine with the emergency starter rope, it is very important to make sure that nothing can get entangled in the engine. A rotating flywheel is very dangerous. never try to replace the top cowling when the engine is running. Proceed at once to the nearest port to get the engine repaired. Take care to prevent water splashing onto the flywheel.

While the emergency start, the starter block with inserted gear is disabled. Before to start the engine, make sure that the invester is in postition “N”.

RUNNING-IN PROCEDURE

A SELVA outboard motor is tested completely in our workshop and it is partially run in a tank. A second test is done by the concessionaire It is always advisable to complete the running in procedure in the following way:



. During the first hour let run the motor to at 2000 rpm (or at half acceleration).
During the second hour maintain it at 3000 rpm and accellerate at max speed for 1 minute max each 10 min.
After this operation use the motor in a normal way.
After 10 hours change the motor oil. After 20 hours change the gear oil (see the lubrification paragraph)

A good running in will allow you to obtain a good performance from your motor and a longer endurance of it.

STOPPING PROCEDURE
Emergency stopping procedures.

In an emergency you must stop your motor pulling the engine stop switch lanyard.

To start the motor again you have to install again the lock plate on the engine stop switch. **Picture No. 52.**

Stopping in normal conditions

Place the gear-shift lever in the neutral position " N " (neutral gear); accelerate light in order to avoid floodings, run the engine again at idling speed and then push the stop button. **Picture No. 53.**

Stopping for a long period of storage.

If you don't use the motor for many days, is preferable to stop the engine in the following way:
When engione is cold, take out the spark plugs and spray some c.c. of motor oil in the chylinder.
Set in action the starter, let make some movement to the piston, re-install the spark plugs

SHALLOW WATER CRUISING

A SELVA motor is equipped with device, which adjusts the trim angle so that you can sail in shallow water.

This operation must be carried out with the engine not in motion and paying very much attention.
Cruising in shallows, run the boat at the lowest possible speed.

Release the free-lock lever.
Close the safety valve of the fuel tank (for motors with incorporated fuel tank).
Tilt up the engine till the first automatic stop using only the tilt up handle.

To bring the engine to the home position, tilt up slightly the engine (using always the proper handle), release the tilt support bar, operating the shallow water levers and take the motor again to its vertical position, then set the free lock lever to the lock position.

Picture No. 54

Removal of the motor from the boat

Each time that you remove the motor from your boat, you must let it cool down and then you have to do the following operations :

- close the fuel cock
- disconnect the fast fuel joint.
- release the clamp screws.
- lift up the motor vertically and keep it in this position till all the water has run out from the cooling-water passages (about 1 minute)
- tilt up the steering rod.
- transport the motor using the proper handle.
- lay down the motor only in the specific position.

Picture No. 55.

If the engine will be placed in a wrong position, the oil inside the oil sump may come out throught the breather, smears the engine so that will be impossible to use it and it risks to heavy damage the order.

Oil may come out from the engine

CLEANING

Cleaning outside

SELVA motors do not need much cleaning, to clean the painted parts use a cloth soaked with water

Do not use flammable solvents.

Cleaning cooling-water passages

Every now and then after using, clean the cooling-water passages, in order to remove mud and salt, so that they do not affect the performance of your motor.

You can carry out this cleaning operation in two different ways:

1 - Immerse the outboard motor without the propeller in a vessel filled up with fresh-water, make sure that the water level is over the height of the water inlets, so that no irreparable damage could be caused to the motor. Shift the gear-shift lever into neutral " N ". Start the engine and run at low speed for a few minutes.

2 - Connect a pipe of fresh-water to the hole for the engine cleaning joint plug (use the proper joint available in the fittings series). Stop the water inlets. Shift the gear-shift lever into neutral. Start the engine and run at low speed for a few minutes.

While cleaning the cooling water passages make sure that water always circulates in the passages, checking its running out of the pilot hole.

Picture No. 56.

MAINTENANCE

Before doing any kind of maintenance or check operation, switch off the engine and wait till it has cooled down, then remove the spark plug cap, in order to avoid an accidental staring.
Pay attention to the motor parts, which are still hot, so that you do not burn yourself.
Some maintenance operations must be carried out by qualified staff.
Contact **SELVA MARINE** after-sale service.

The following chart lists the periodic maintenance operations to do on your motor.

The pointed out operations must be done by qualified staff.

PERIODIC INSPECTIONS AND ADJUSTMENTS (Running hours)					
OPERATIONS TO PERFORM	**INITIAL**			**THEREAFTER EVERY**	
	10	**50**	**100**	**100**	**Out of season**
Inspection of the conditions of the fuel hoses.If necessary replace them.	■		■	■	■
Check the fuel hose joints for leaks If necessary replace them.	■		■	■	■
Check the oil filter, if necessary replace it	■	■	■	■	■
Check the proper working of the carburettor. If necessary adjust it.	■		■	■	■
Check, clean and adjust the spark-plugs. If necessary replace them.	■		■	■	■
Check the ignition.	■	■	■	■	■
Check the head screws and the adjustment to the correct torque.	■	■	■	■	■
Check the valve clearence	■	■	■	■	■
Check the trasmission belt. If necessary replace it	■				■
Check the efficiency of the water pump and of the cooling system	■	■	■	■	■
Check the motor oil level	■	■		■	
Check the gearbox-oil level	■	■		■	
Check the wear of the anode. If necessary replace it.	■	■	■	■	■
Check the condition of the propeller. If necessary replace it.	■	■	■	■	■

GREASING CHART			
GREASE POINTS	LUBRICANT THAT MUST BE USED	GREASING FREQUENCY	
		FRESH-WATER	SALT WATER
Motor block	API SE, SF, SG, SH SAE 10W-30 10W-40 15W-40	Check the oil level every 6 months. If necessary add till the marked point. Change the oil after the first 10 running hours; afterwards every 100 hours, anyway change the oil once per season	
Gearbox	API GL-5 SAE 80 W 90 MIL -L 2105 C	Check the level after the first 10 running hours. Afterwards every 50 hours. If necessary add till the marked point. Change the gearbox-oil after the first 20 running hours and afterwards every 100 running hours; and anyway each season.	
Bushes of the clamps pipe	SPRAY LUBRICANT	60 days	30 days
Cowling lock levers pins	SPRAY LUBRICANT	60 days	30 days
Tie rod carburettor levers	WATER-REPELLENT MARINE GREASE	60 days	30 days
Propeller shaft	WATER-REPELLENT MARINE GREASE	60 days	30 days
Clamp screws	WATER-REPELLENT MARINE GREASE	60 days	30 days
Gear-shift lever	SPRAY LUBRICANT	60 days	30 days

Greasing and additions

Motor Oil

This engine is equipped with a forced lubrification system on the head block.
Selva deliver the engine with the oil sum empty

Please pay the maximum attention before to start the engine that the oil sum will be filled with the specific oil and in the specific quantity as indicated in the technical table

The user has to change the oil completely after the first 10 cruising hours.
After this change the level has to be checked every 50 hours using the appropriate graded deapstick, which is insterted in the level plug, and replace it every 100 hours anyway at least once per season.

Motor oil change

To change the Motor oil do as follow:
Keep the motor in vertical position.
Place a container to collect the used oil under the drain-oil hole
Take out the oil-level plug and the oil drain-plug.
Wait until the oil has drained completely, (during this operation you must check, if water or other foreign bodies are to be found in the drained oil. They are signs of anomalies which must be identified and repaired by qualified staff, before using the motor again).
Insert the oil drain plug and check the seal.
Throught the filling hole fill the oil.

The oil must agree with the characteristics listed in the greasing chart, and must comply with the quantity pointed out in the technical detailed list.
Insert and tighten the oil-level plug and the oil drain plug.

Picture No. 57.

Gearbox-oil

Selva supply the motor already with the oil in the gearbox, which the user will have to change completely after the first 20 cruising hours
After this change you must check its level every 50 hours and change it every 100 hours, and anyway each season.

Gearbox-oil change

To change the oil do as follows:
Keep the motor in vertical position.
Place a container to collect the used oil under the gearbox.
Take out the oil-level plug and the oil drain-plug.

They have a different size and after the oil change they must be replaced in their proper seat.
Wait until the oil has drained completely, (during this operation you must check, if water or other foreign bodies are to be found in the drained oil. They are signs of anomalies which must be identified and repaired by qualified staff, before using the motor again).
Protecting the leaning parts, put the motor horizontally, with the oil-level plug and the oil drain-plug holes upwards.
Inject the oil into the oil drain-plug hole.

The oil must agree with the characteristics listed in the greasing chart, and must comply with the quantity pointed out in the technical detailed list.
Insert and tighten the oil-level plug and the oil drain plug.
Picture No. 58.

The used oil must be given to the proper collecting centres or to a SELVA service point.

Spark-plug

The spark-plug must be often inspected because heat and deposits affect its efficiency so that the performance of the motor will be affected too.

The inspection of the spark-plug must be done when the engine is not running and it has cooled down.
It is very important to check, that the part made of porcelain is not damaged because this could allow external sparks, which could lead to explosion or fire.

To remove the spark-plug use the supplied spanner; using an abrasive brush, remove any deposits, then check the wear condition and the spark-plug gap (the gap must be 0,6 mm, to measure it use a thickness gauge) .
If the spark-plug is too badly worn you must replace it with a new one which must agree with the characteristics listed in the specifications chart.

The spark-plug torque is 20 Nm (~ 2. kgm). If a torque-wrench is not available, you can obtain a good estimate of the correct torque turning the spark-plug completely by hand and then turning it with the spanner, a new spark-plug must be turned ~ 90° and an old one 15° ÷ 20°.

Replace the spark-plug cap, checking that it is correctly fitted and then replace the top cowling. **Picture No. 59.**

Sacrificial anode.

To protect the motor against electrochemical corrosion, due to the presence in its structure of many different materials, a sacrificial anode has been applied.
The anode will be subject to a strong corrosion, so you have to remove the scales from the surfaces of the anode periodically.

Failure to clean it, will affect its effectiveness.

Do not paint the anode, for this would render it ineffective.

When the corrosion compromise its functionality, you have to replace it.

Picture No.60.

Motor oil filter replacement

The motor is equipped with a filter placed in the lubrication lead.

the occlusion of the filter could compromise the fonctionemment of the engine and compromise seriously the efficiency

To replace the filter, motor must be switch off and without oil.
Unscrew the filter and replace it with a new one **Picture No 61.**

The used filter oil contain exaust oil and must be given to the proper collecting centres or to a SELVA service point.

Replacement of the propeller.

The propeller is one of the components, which have a great influence upon the performance of the motor. An unsuitable or damaged propeller can cause serious damages to the motor besides reduce the performance.

For a careful choice of the propeller consult a SELVA MARINE service point.

To replace the propeller do as follows:

- wait until the motor has cooled down and remove the top cowling;

- remove the spark-plug cap, to avoid an accidental start during the operations of replacement of the propeller;

– place the gear-shift lever in the neutral position "N";

– protect your hands using strong gloves and insert a wooden lump between the propeller blades and the anti-cavitation plate, to keep the propeller still.

– remove the self stopping nut, the washer and the propeller;

– spread the propeller shaft with water-repellent grease;

– make sure, that the drive propeller pin is centred on the shaft;

– by hand insert the propeller making sure that it gets correctly into the drive pin;

– insert the washer and by hand screw the self-locking nut;

– insert a wooden lump between the propeller blades and the anti-cavitation plate.

– keep the propeller pressed against the pin and screw tight the nut. **Picture No.**

62.Storage

To help the endurance of your motor, you must carry out properly the following storage operations:

Clean the motor and the cooling-water passages.

Switch off the engine as shown in the section "stopping for a long period of storage ".

Remove the fuel-line connections from the motor.

Empty the float chamber

Change the motor oil

Change the gearbox-oil.

Verify the valve clearence

Verify the correct timing

Check the screws torque.

Grease all the components as shown in the greasing chart.

Inspect the anode.

Empty the fuel tank.

Store the motor in the vertical position and in a dry, not to cold place.

The storage operations must be carried out by qualified staff.

TROUBLESHOOTING

A regular maintenance can help you prevent many problems with your outboard motor.

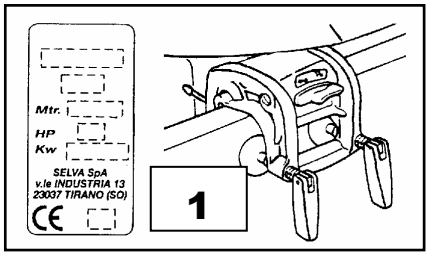
The following chart lists some common difficulties and their possible causes.

If you still have difficulties, after investigating these, please contact your **SELVA MARINE** dealer**.**

A - The engine will not start.
B - The engine runs irregularly or stalls.
C - The engine idles unevenly.
D - Engine speed will not increase.
E - The engine is overheating.
F - Engine speed is higher than normal.
G - Engine speed is lower than normal.
H - Boat speed is too low.
I - The boat will suddenly slow.

A	B	C	D	E	F	G	H	I	Possible cause
■	■							■	Fuel tank is empty
■	■		■						Fuel hose is incorrectly connected
■	■	■	■			■			Fuel hose is flattened or kinked
■	■	■	■					■	Fuel pump is malfunctioning
	■	■	■	■		■			Improper fuel
	■	■	■			■			Improper motor oil
■	■	■							Carburettor has a wrong adjustment
■	■	■	■			■			Wrong timing
■									Incorrect starting procedure
■	■	■	■			■		■	Sparks -plugs are fouled.
■	■	■		■		■			Improper spark-plugs
	■	■				■			Incorrect spark-plug gap.
■									Spark-plug cap incorrectly fitted

A	B	C	D	E	F	G	H	I	Possible cause
■									Electric circuit is defective
■	■	■	■			■		■	Ignition-coil is defective
				■		■		■	Clogged water passages
				■		■		■	Faulty water-pump
	■			■		■		■	Thermostat faulty
					■		■	■	Cavitation is occurring
					■		■	■	Propeller is damaged
			■	■	■	■	■		Propeller has not the proper dimensions
			■	■	■		■		Incorrect trim-angle
			■	■			■		Load on boat is improperly distributed
					■				Transom is too high
			■						Transom is too low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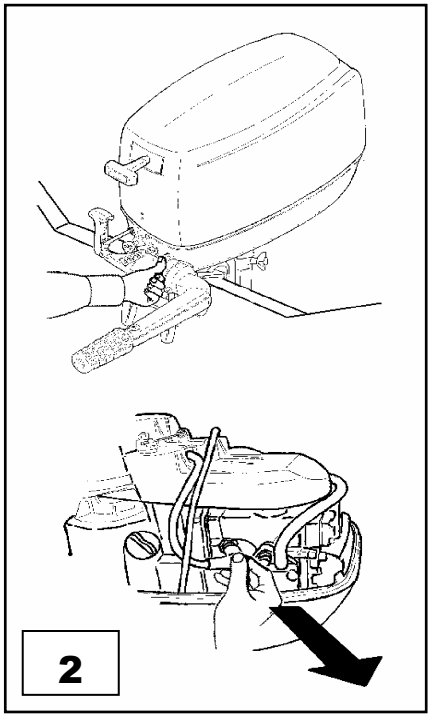
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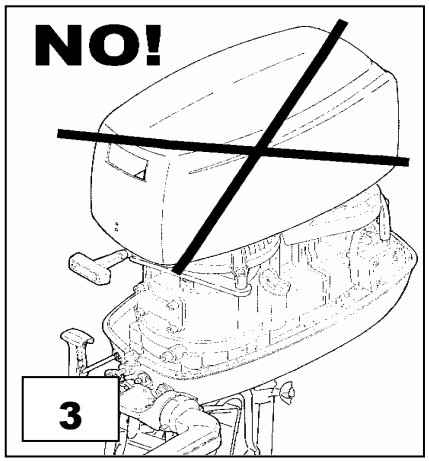
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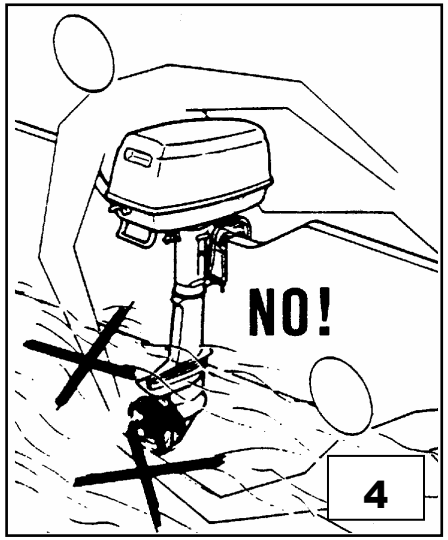
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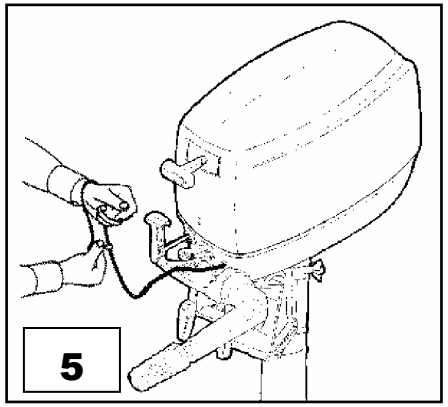
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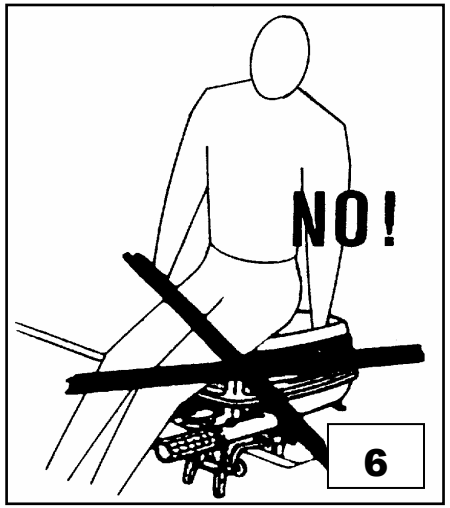
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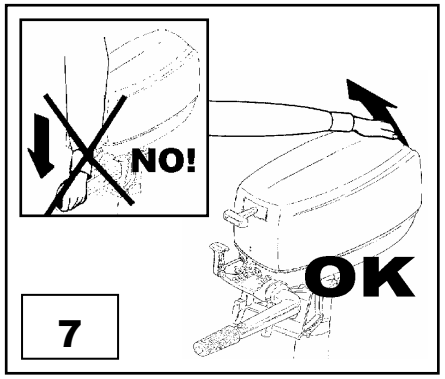
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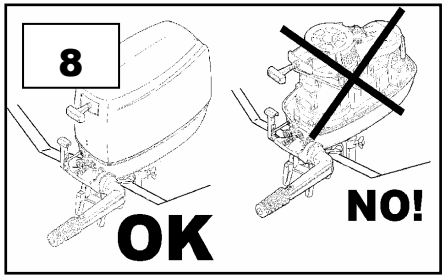
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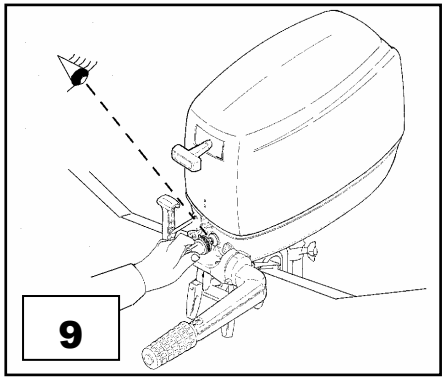
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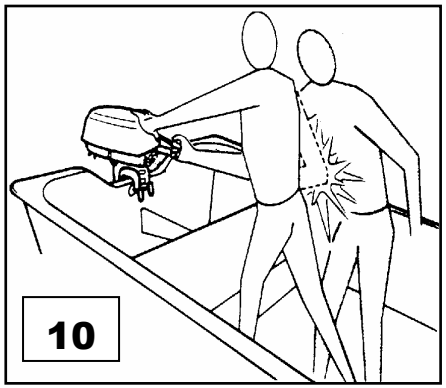
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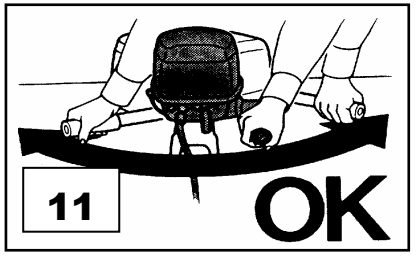
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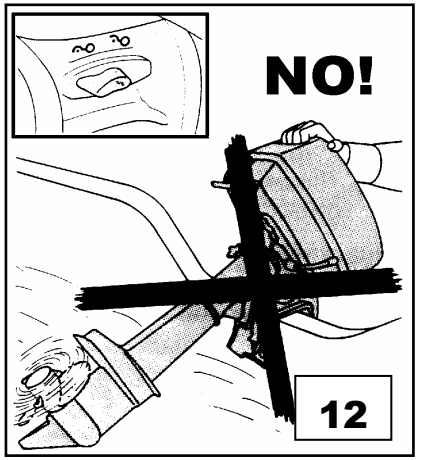
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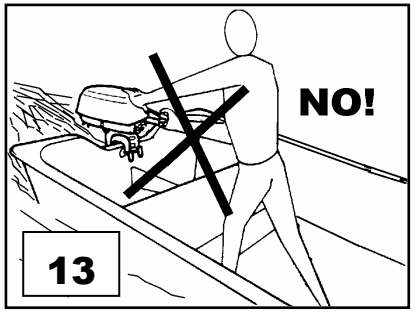
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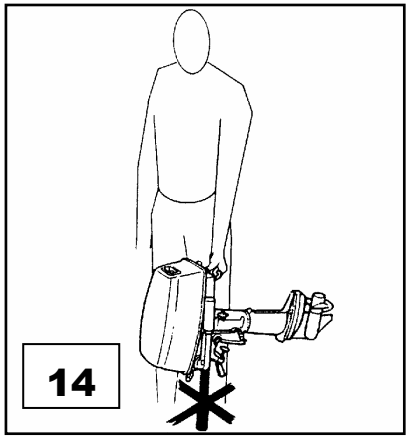
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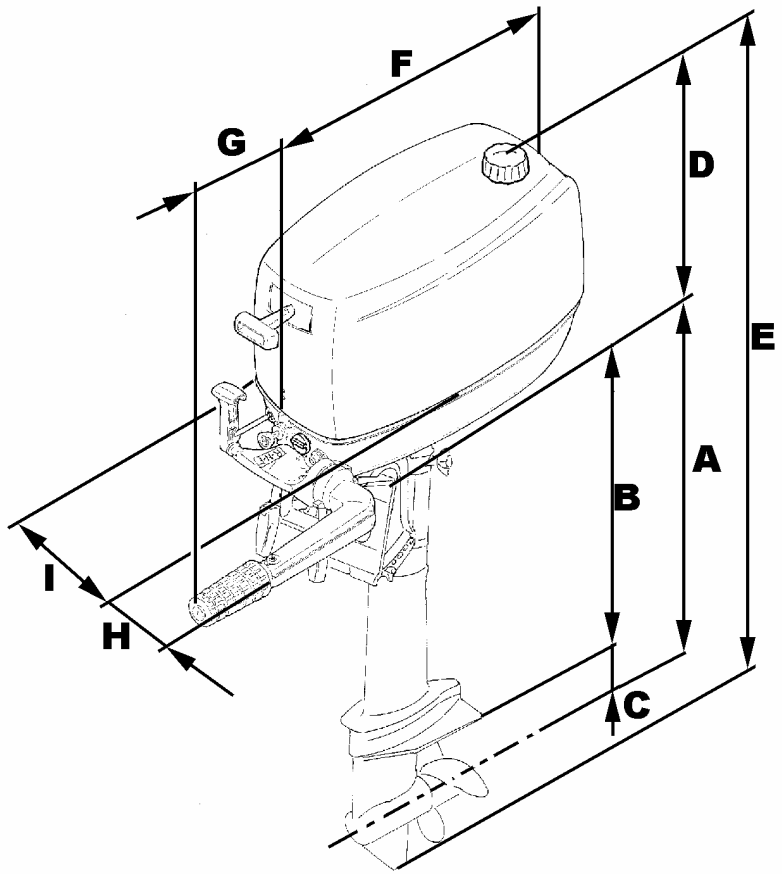

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L.	780	555	125	370	1165	490	300	70	275

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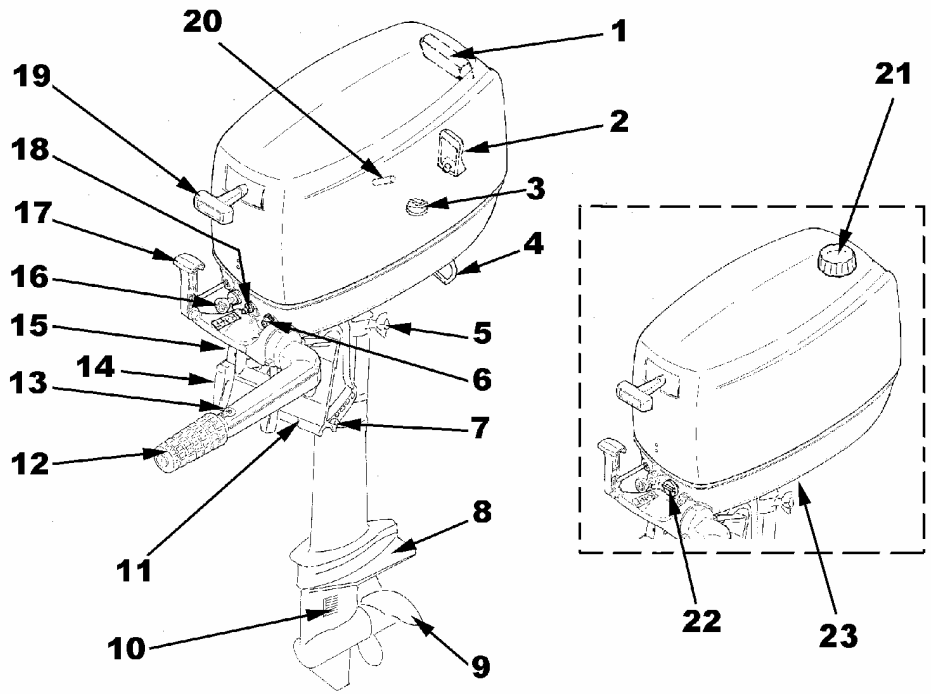

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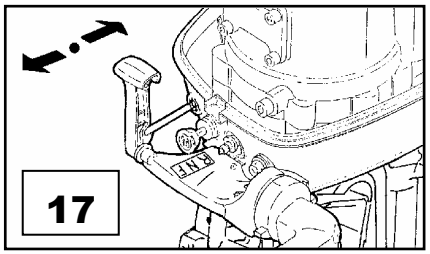
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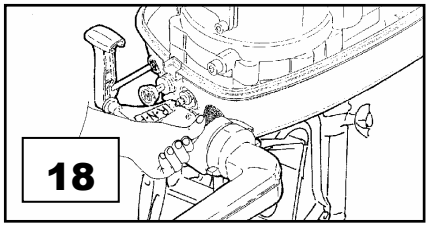
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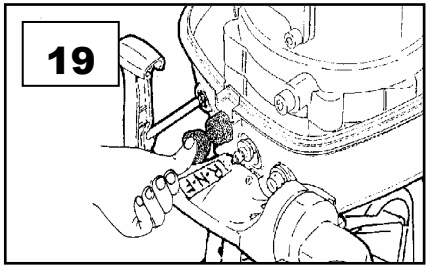
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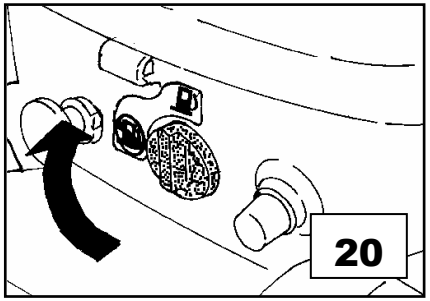
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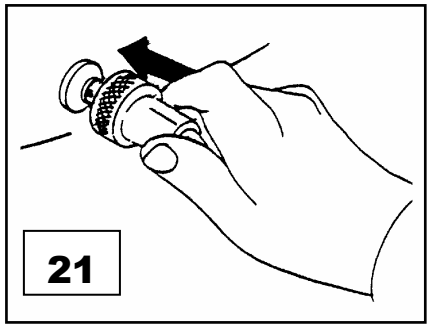
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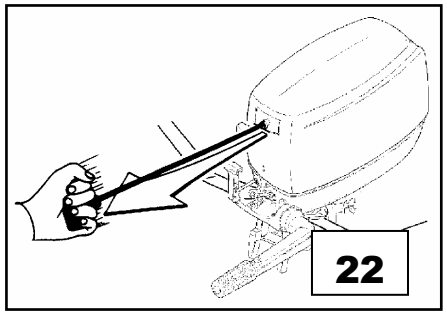
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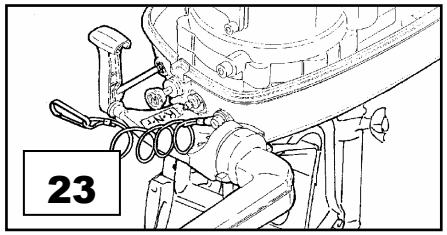
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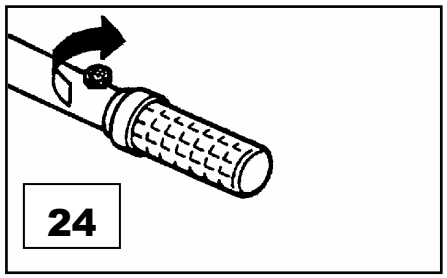
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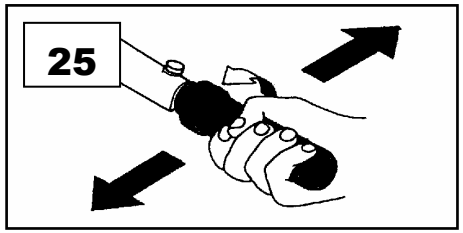
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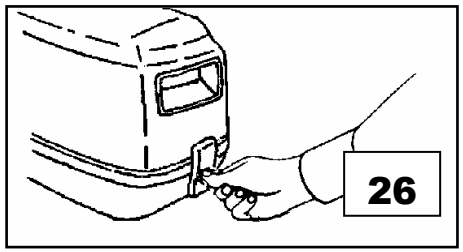
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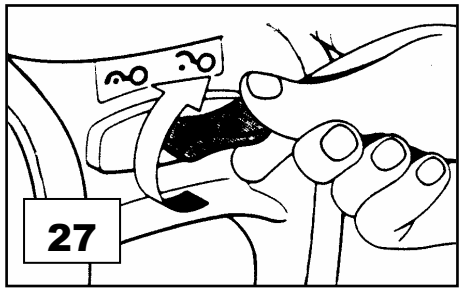
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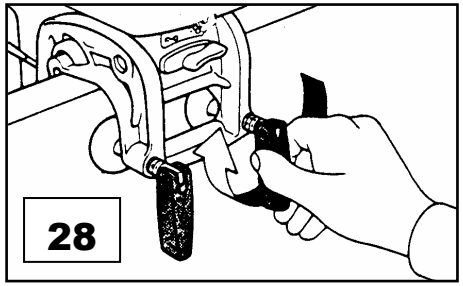
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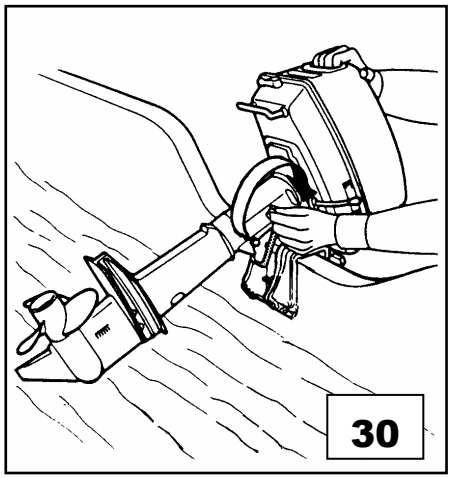
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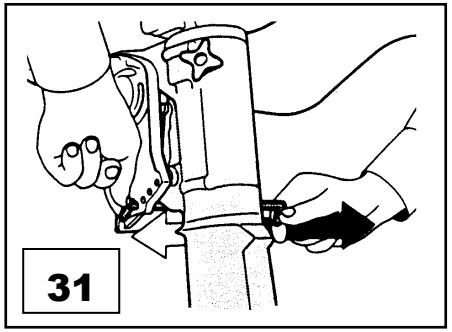
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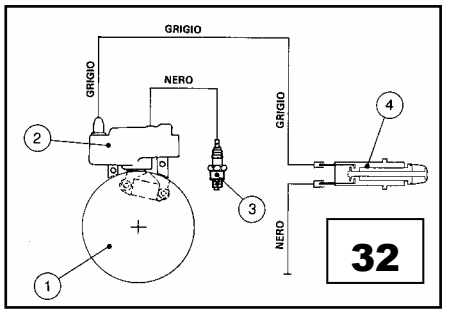
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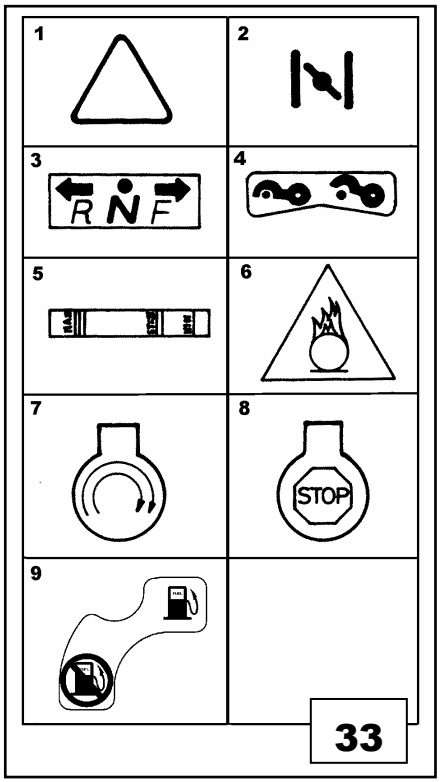
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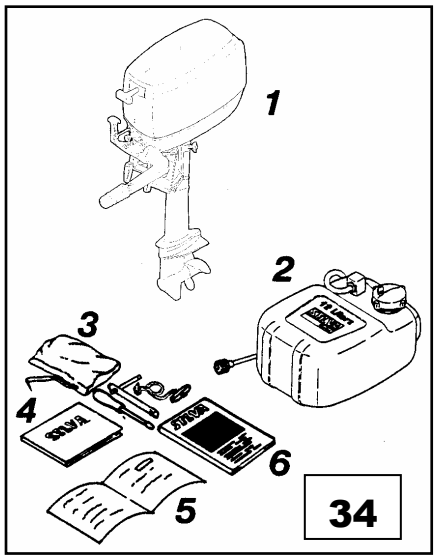
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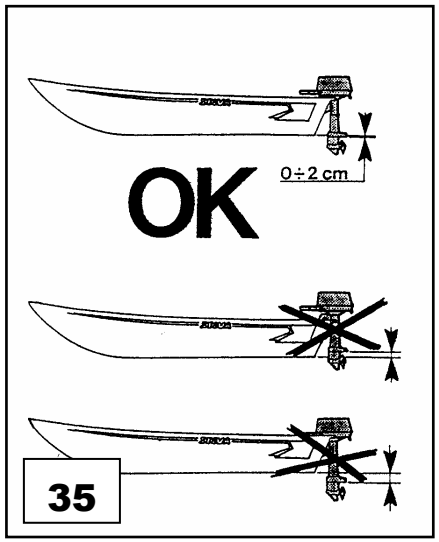
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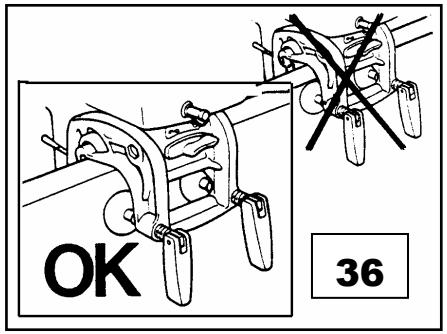
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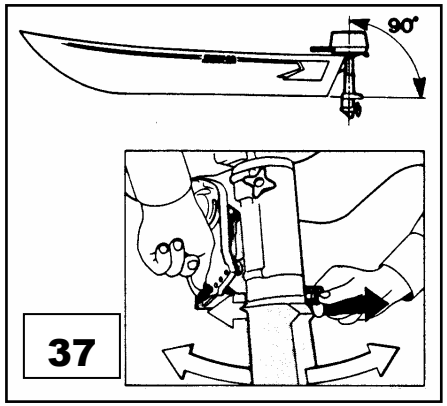
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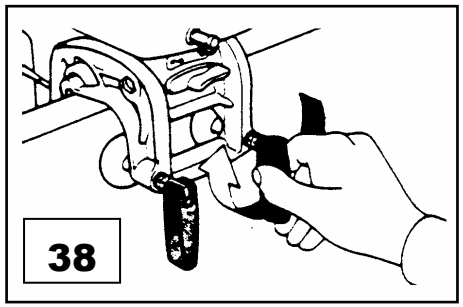
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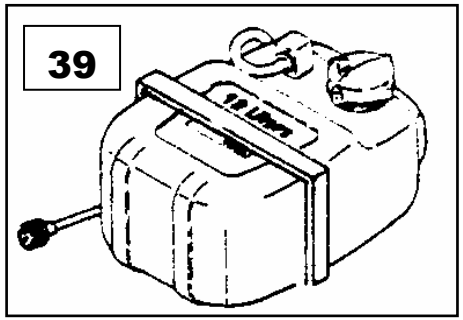
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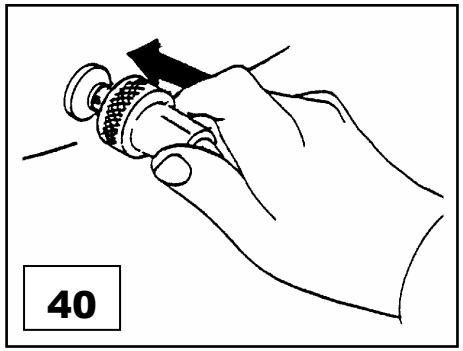
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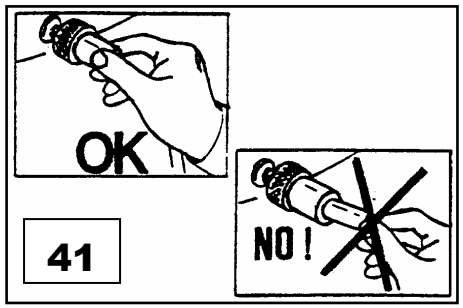
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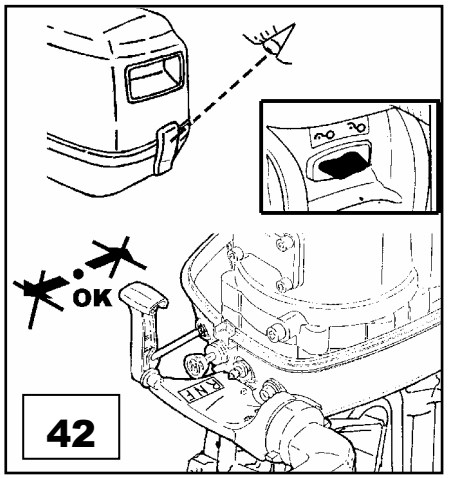
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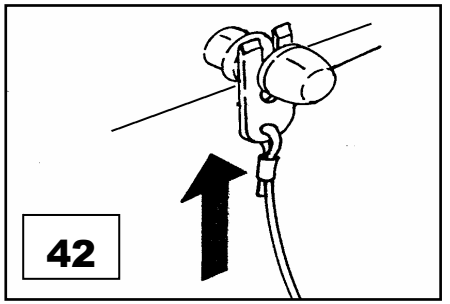
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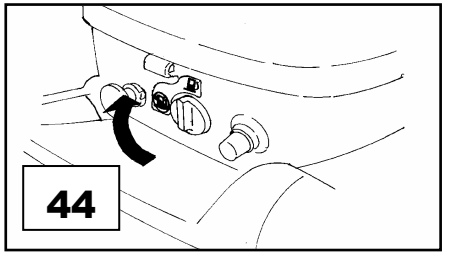
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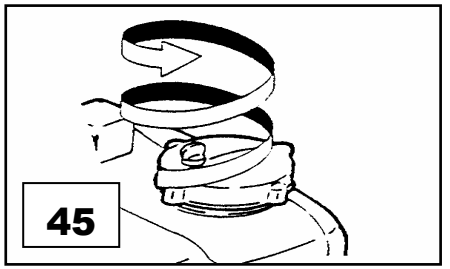
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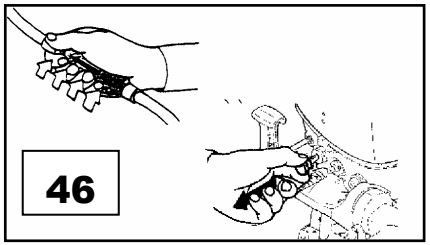
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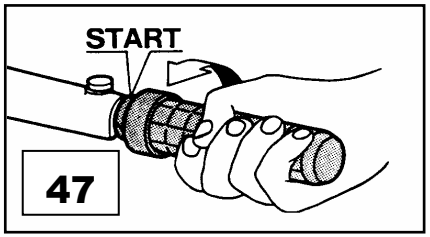
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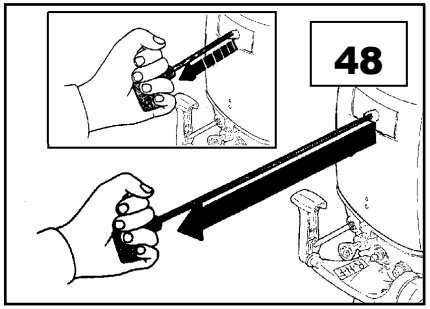
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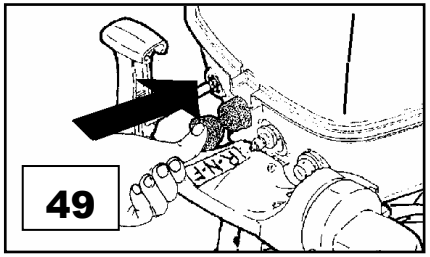
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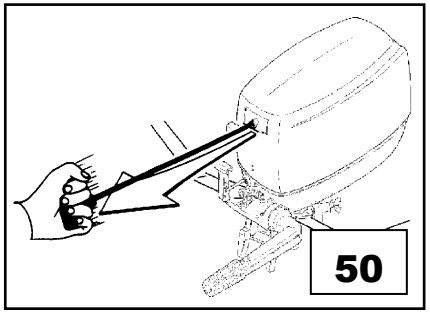
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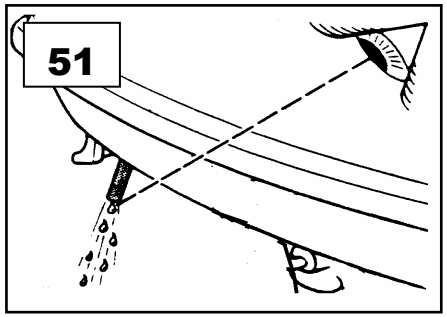
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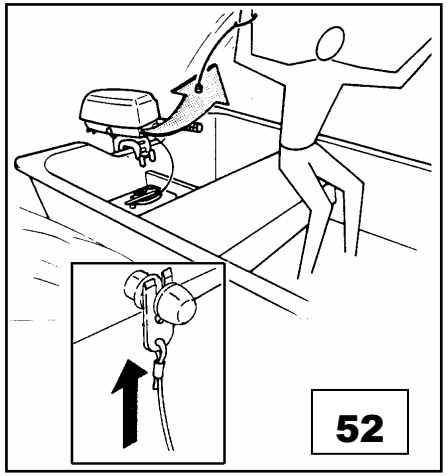
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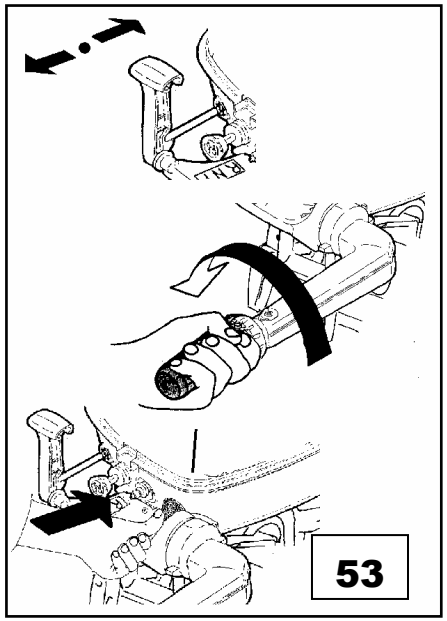
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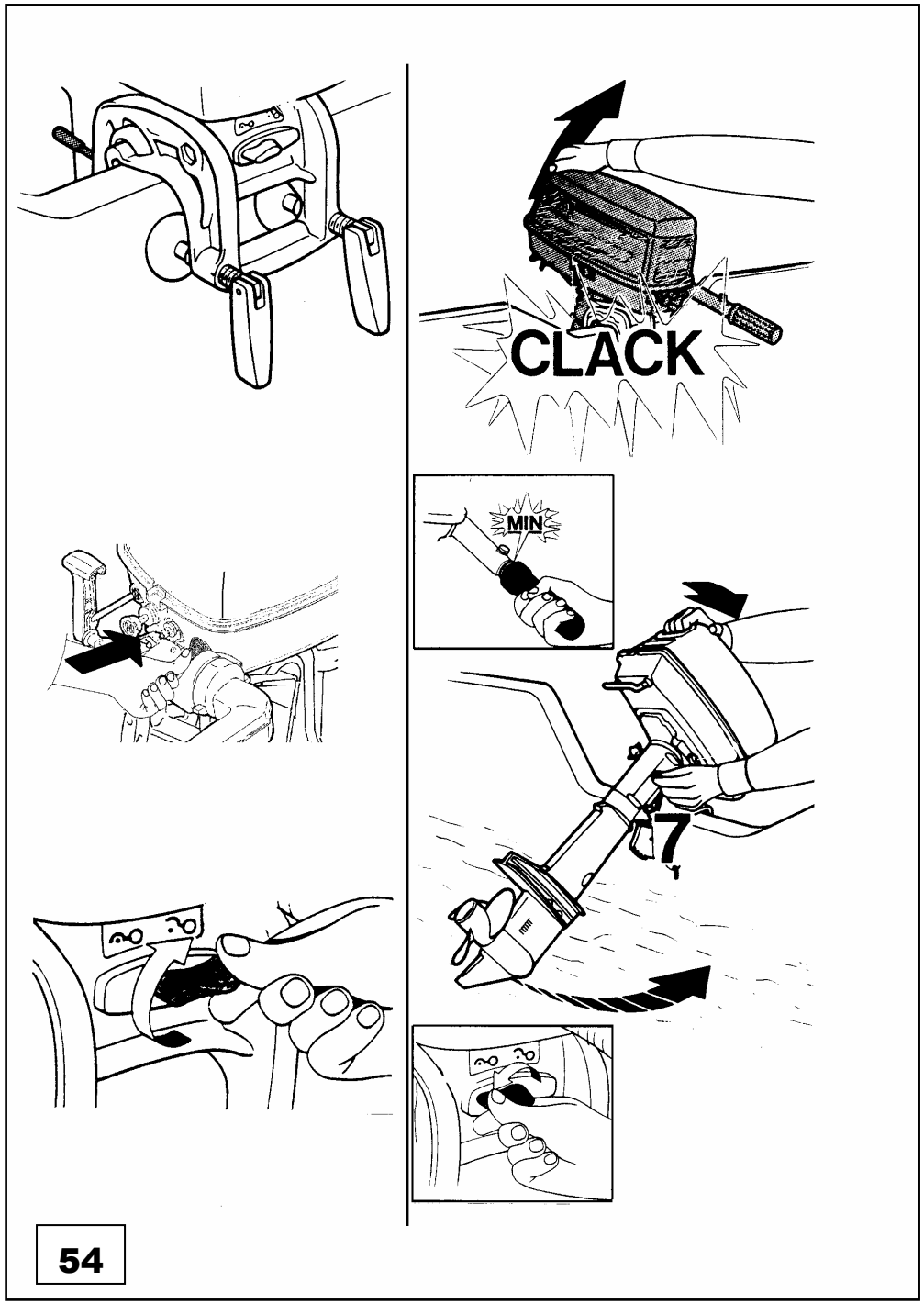
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MIN
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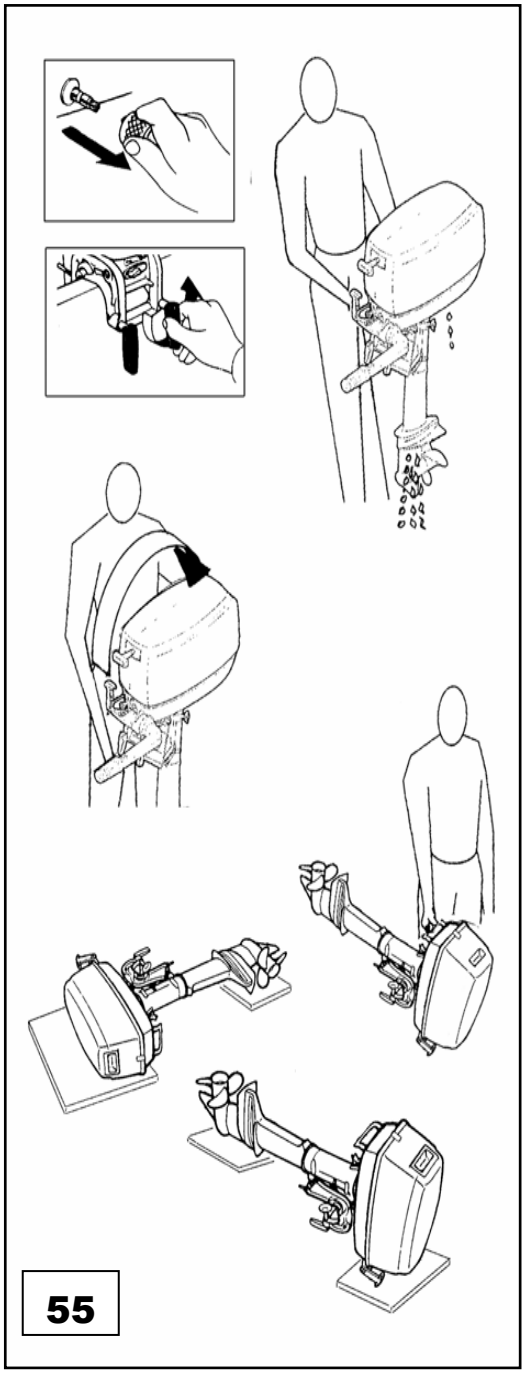
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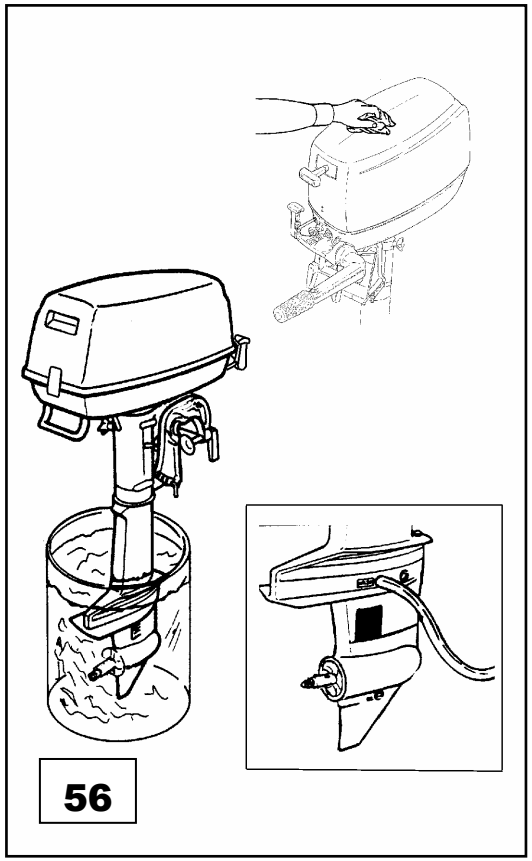
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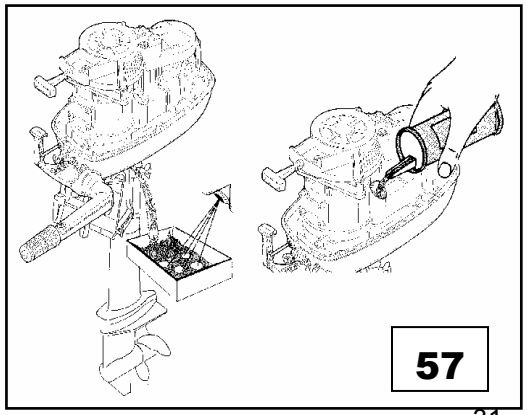
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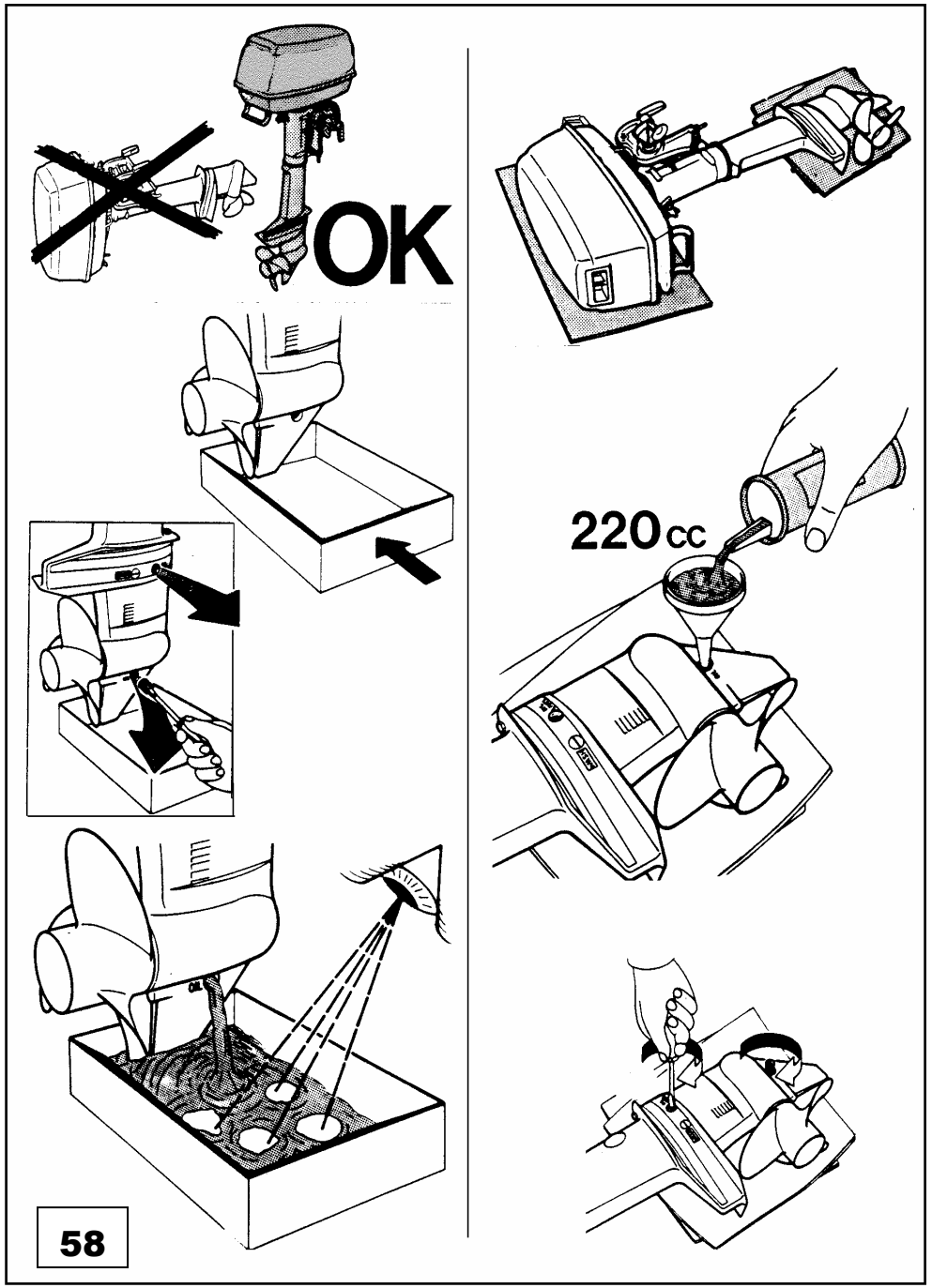
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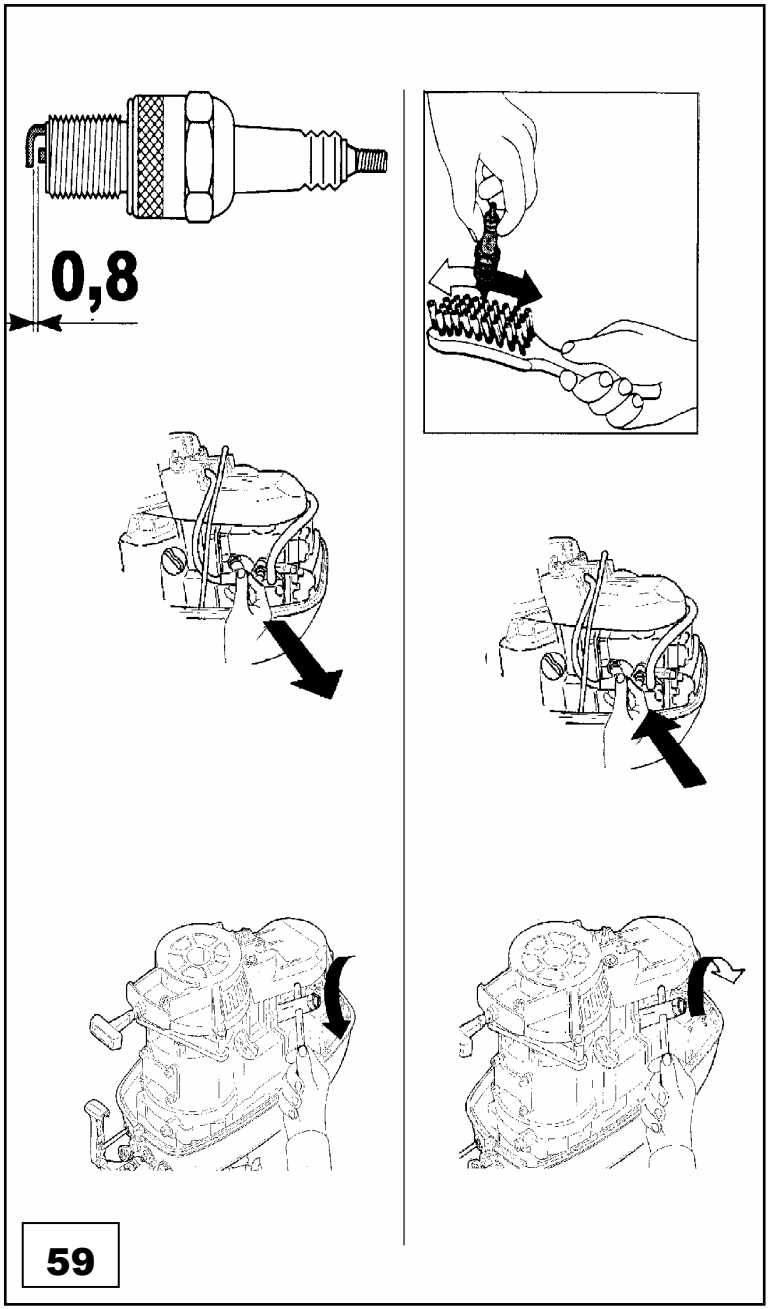
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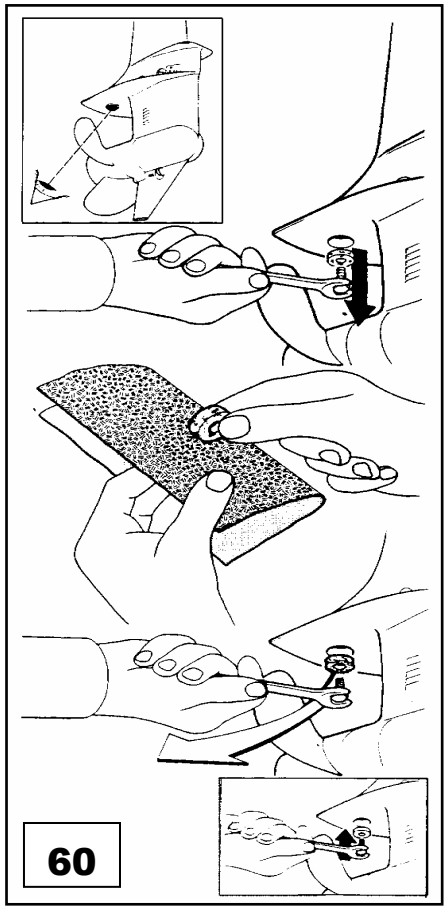
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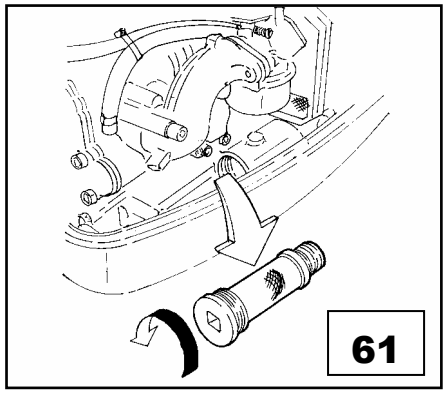
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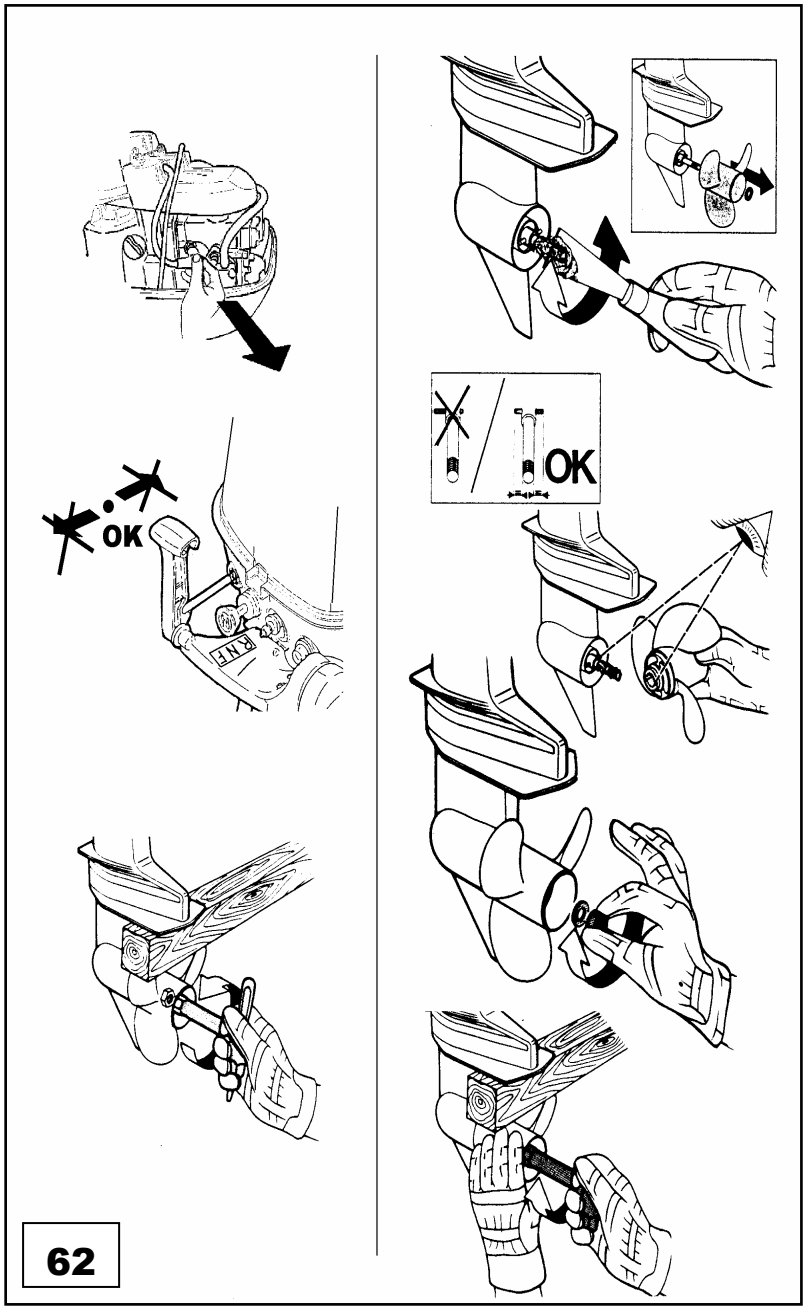
OK
OK
62

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